



Rocky Flats Environmental Technology Site

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 774, North Dock Area

REVISION 0

November 25, 2003

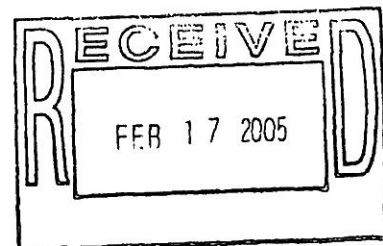
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EXEMPTION NUMBER CEX-005-02**



1/33

ADMIN RECORD

B771-A-000276

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 774, North Dock Area

REVISION 0

November 25, 2003

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ABBREVIATIONS/ACRONYMS

ACM	Asbestos Containing Material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
DCGL _{EMC}	Derived Concentration Guideline Level – elevated measurement comparison
DCGL _W	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
HEUN	Highly Enriched Uranyl Nitrate
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
PDSR	Pre-demolition survey report
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
FFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSOP	RFCA Standard Operating Protocol
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity

VOCs	Volatile organic compounds
WSRIC	Waste Stream and Residue Identification and Characterization

EXECUTIVE SUMMARY

A Pre-Demolition Survey was performed to enable compliant disposition and waste management of the Building 774 North Dock Area (Rooms 212, 250, and 251). Because this Type 3 area will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Building surfaces characterized as part of this PDS included the Rooms 250 and 251 interior floor, walls, ceiling, and exterior surfaces, and the Room 212 slab. Environmental media beneath and surrounding this area was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

The PDS encompassed both chemical and radiological characterization. The characterization was built upon physical, chemical and radiological hazards identified in the facility-specific *B771 and B774 Hazards Characterization Report for the 771 Closure Project*.

Based upon this PDSR, the Building 774 North Dock Area can be demolished and the waste managed as PCB Bulk Product waste or as sanitary waste, and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete. All under-slab utilities and piping systems shall be managed as radioactive waste during slab demolition, unless additional data collected during demolition proves otherwise. The common wall between the Room 250 South Wall and 774 Building Proper shall not be demolished until the Building 774 PDS is completed verifying the common wall is acceptable for demolition. To ensure that the facility remains free of contamination and PDS data remain valid, Level 2 isolation controls have been established, and the area posted accordingly.

1 INTRODUCTION

A Pre-Demolition Survey was performed to enable compliant disposition and waste management of the Building 774 North Dock Area. The B774 North Dock consists of rooms 212, 250, and 251. Because this Type 3 building will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Building surfaces characterized as part of this PDS included the Maintenance Shop interior floor, walls, ceiling, and exterior surfaces. Environmental media beneath and surrounding this area was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these is the Building 774 North Dock Area. This facility no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this Type 3 facility can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied; this document presents the PDS results for the Building 774 North Dock Area. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS is built upon physical, chemical and radiological hazards identified in the facility-specific *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0.

1.1 Purpose

The purpose of this report is to communicate and document the results of the Building 774 North Dock Area PDS effort. A PDS is performed prior to building demolition to define the pre-demolition radiological and chemical conditions of a facility. The pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of the Building 774 North Dock Area. Environmental media beneath and surrounding the facilities are not within the scope of this PDSR and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Section 2.0 of the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Hazards Characterization Report was conducted to understand the facility history and related hazards. The Building 771 Hazards Characterization was performed in June 2001 (Refer *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0). Based on the characterization results, radiological contamination was identified in Building 774, and the Building 774 North Dock Area was identified as a Type 3 facility (primarily due to the physical proximity of the area to Building 774). Therefore, a PDS was required before demolition of the facility.

The B774 North Dock Area is considered a Type 3 facility due to its physical proximity to Building 774. However, the survey units that encompass the 774 North Dock Area are classified based on contamination potential, per Section 3.0 of the PDSP.

This report documents the results of that PDS. The hazards characterization results and historical review (refer to Attachment E) were used to identify PDS data gaps and needs, and to develop radiological and chemical PDS characterization packages. Characterization documentation is located in the Building 771 Characterization Project files.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

The Building 774 North Dock Area was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern (weapons-grade plutonium isotopes). Based upon a review of the characterization data, historical and process knowledge, in-process survey data, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to survey packages 771046 and 771102). A Survey Unit Overview Map is presented in Attachment A. Based on hazards characterization data and historical and process knowledge, transuranic isotopes are the primary contaminants of concern in Building 774. Therefore, the PDS was performed to the transuranic PDS unrestricted release criteria. Individual radiological survey unit packages are maintained in the Building 771 Characterization Project files.

The Building 774 North Dock Area survey unit packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), media samples, and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps are presented in Attachments B and C, *Radiological Data Summary and Survey Maps*.

774, Rooms 250 and 251 Interior, and Room 212 Slab – (Survey Unit 771046)

The interior surfaces of Rooms 250 and 251, and the 212 slab were classified as a Class 2 survey unit. The classification was based on the potential for contamination due to process history, although no contamination in excess of the unrestricted release limits was identified during the equipment removal and room strip-out. A total of 15 random TSA and RSA measurements, and 15 media samples were collected. Surface scan surveys of 100% of the floor and lower wall surfaces (335 m²), and 16% of the upper walls/ceiling (57 m²) were also performed.

All scans, surveys, and media sample results in survey unit 771046 were less than the applicable PDS transuranic DCGL values. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771046 are presented in Attachment B, *Survey Unit 771046 Radiological Data Summary and Survey Map*.

774, 250 and 251 Exterior – (Survey Unit 771102)

The exterior surfaces of Rooms 250 and 251 were classified as a Class 3 survey unit. The classification was based on the low potential for contamination from yard area activities. A total of 15 random TSA and RSA measurements were collected. Surface scan surveys of 100% of the lower walls below 2 meters (~ 70 m²), and 10% of the upper walls above 2 meters (~ 18 m²) were also performed. In addition, six (6) TSA and RSA measurements were collected on the roof from three (3) locations. Measurements were collected on top of the tar media and below the tar media (base of roof).

Elevated measurements results (in excess of 100 dpm/100 cm²) were detected along the metal flashing adjacent to the roof. Five (5) coupon samples were collected to verify the presence of Po-210, a naturally-occurring radon progeny, and the absence of plutonium isotopes.

Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771102 are presented in Attachment C, *Survey Unit 771102 Radiological Data Summary and Survey Map*.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Based on a thorough review of historical and process knowledge, visual inspections, and personnel interviews, no additional chemical hazard sampling requirements were identified, with the exception of beryllium (refer to Section 4.2).

4.1 Asbestos

No asbestos-containing materials are present in these areas.

4.2 Beryllium (Be)

The B774 North Dock Area is not and has never been a beryllium-controlled area. However, current beryllium data is not available for the area. Therefore, per the Beryllium Sampling Decision Tree in the PDSP, sixteen (16) random beryllium smear

samples were collected in accordance with the PDSP and the *Beryllium Characterization Procedure*, PRO-536-BCPR, Revision 0, September 9, 1999.

All beryllium smear sample results were less than the investigative limit of $0.1 \mu\text{g}/100\text{cm}^2$. PDS beryllium laboratory sample data and location maps are contained in Attachment G, *Chemical Data Summaries and Sample Maps*.

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based upon the *B771 and B774 Hazards Characterization Report, 771 Closure Project*, Revision 0, dated June 12, 2001, personnel interviews, facility walk-downs, and historical process knowledge (WSRIC/WEMS), the B774 North Dock Area did not contain hazardous waste storage units. A visual inspection of the building by 771/774 Industrial Hygiene personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling. As a result of these observances, it has been determined that no sampling for RCRA/CERCLA constituents is required. Analysis of paint throughout the 771/774 complex has revealed lead levels above regulatory limits in only one out of 61 samples taken, and the elevated level was only found in the stack exhaust tunnel. However, this sample was on an orange-colored sealant.

The concrete generated from the demolition of the B774 North Dock Area can be used for onsite recycling in accordance with the Concrete Recycling RSOP.

4.4 Polychlorinated Biphenyls (PCBs)

Based on historical knowledge, personnel interviews, and 771/774 Environmental Compliance Personnel walk-downs, the B774 North Dock Area has never used/transferred free flowing/exposed PCB's. At one time the facility may have used PCB ballasts in its fluorescent light fixtures, however, all of these have been removed, and compliantly disposed of, resulting in no impact on demolition activities in the B774 North Dock Area.

Per the *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, PCBs are present in some applied paints (i.e., on several walls and floors within the B771 and B774 Contamination Areas, and within the 771/776 Tunnel). Because additional paint sampling was not performed in the B774 North Dock Area, and because painted surfaces remain in the area, any painted debris generated during demolition that is not recycled on-site will be disposed of a PCB Bulk Product waste.

5 PHYSICAL HAZARDS

Physical hazards associated with the B774 North Dock Area consist of those common to standard industrial environments, and include hazards associated with energized systems, utilities, and trips and falls. There are no other unique hazards associated with the facility. The facility has been relatively well maintained and is in good physical condition, therefore, does not present hazards associated with building deterioration.

The common wall between the B774 North Dock Area and B771 Proper will not be demolished until the PDS is completed at a later date, verifying the common wall is acceptable for demolition.

Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Building 774 North Dock Area, and consequent waste management, is of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments B and C) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- ◆ the *number* of samples and surveys;
- ◆ the *types* of samples and surveys;
- ◆ the sampling/survey process as implemented “in the field”; and
- ◆ the laboratory analytical process, relative to accuracy and precision considerations.

The DQA Checklists are provided in the individual survey unit packages (located in the Building 771 Characterization Files).

The Minimum Detectable Activity (MDA) for each PDS instrument was determined *a priori* based on typical parameters (background, efficiency, and count time). A list of radiological field instrumentation and associated sensitivities is presented in Table 1.

Table 1
PDS Radiological Field Instrumentation and Minimum Detectable Activities

Model	Measurement Type	MDA (dpm/100 cm ²)
NE Electra DP6	TSA	48
NE Electra AP6	Scan	300
Eberline SAC-4	Removable (Smears)	10
Bartlett FSM	Scan	300

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Building 774 North Dock Area will generate a variety of wastes. All wastes can be disposed of as PCB Bulk Product waste or as sanitary waste, following the removal of the asbestos containing materials (ACM) discussed in Section 4.1, and the potentially contaminated drain discussed in Section 3. Concrete can be used as backfill onsite in accordance with the RFCA RSOP for Recycling Concrete.

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, the Building 774 North Dock Area is classified as an RFCA Type 3 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999) and is ready for demolition. The PDS for the Building 774 North Dock Area was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Environmental media beneath and surrounding the facilities will be addressed at a future date in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

A facility walkdown and historical review indicates that no RCRA/CERCLA constituents exist on the Maintenance Shop structural surfaces (refer to Attachment E, Historical Review). All beryllium results obtained during the PDS were below the investigative level of $0.1 \mu\text{g}/100\text{cm}^2$. Any potentially PCB-containing fluorescent light ballast and hazardous waste items (e.g., mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury-containing gauges, circuit boards, leaded glass, and lead-acid batteries) were previously removed from the building, therefore, do not impact demolition activities.

Radiological contamination in excess of the PDSP Table 7-1 limits was not detected in the Building 774 North Dock Area.

Based upon this PDSR, the Building 774 North Dock Area can be demolished and the waste managed as PCB Bulk Product waste or as sanitary waste, and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete. All under-slab utilities and piping systems shall be managed as radioactive waste, unless additional data collected prior to waste disposition proves otherwise. To ensure that the facility remains free of contamination and that PDS data remain valid, Level 2 isolation controls have been established, and the area posted accordingly.

9 REFERENCES

B771 and B774 Hazards Characterization Report for the 771 Closure Project, dated June 12, 2001, Revision 0.

DOE/RFFO, CDPHE, EPA, 1996. *Rocky Flats Cleanup Agreement (RFCA)*, July 19, 1996.

DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

DOE Order 414.1A, *Quality Assurance*

EPA, 1994. *The Data Quality Objective Process*, EPA QA/G-4.

K-H, 1999. *Decommissioning Program Plan*, June 21, 1999.

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 4, July 15, 2002.

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual* (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 2, March 10, 2003.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-563-ACPR, *Asbestos Characterization Procedure*, Revision 0, August 24, 1999.

PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999.

RFETS, *Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition*.

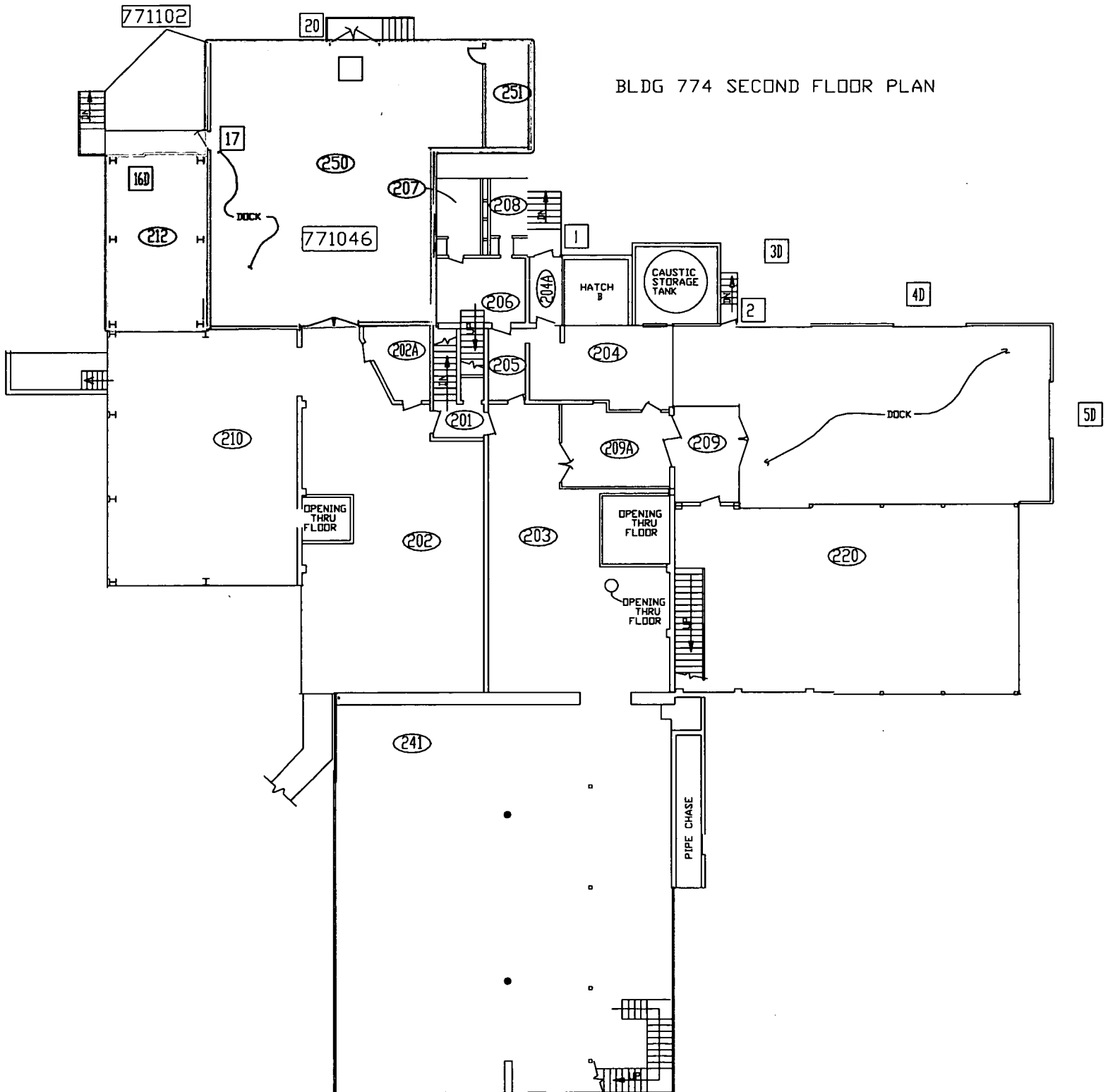
RFETS, *Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*.

RFETS, *RFCA RSOP for Recycling Concrete*, September 28, 1999

ATTACHMENT A

Survey Unit Overview Map

BLDG 774 SECOND FLOOR PLAN



ATTACHMENT B

Survey Unit 771046
Radiological Data Summary and Survey Map

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AM

Survey Unit: 771046

Classification: 2

Building: 774

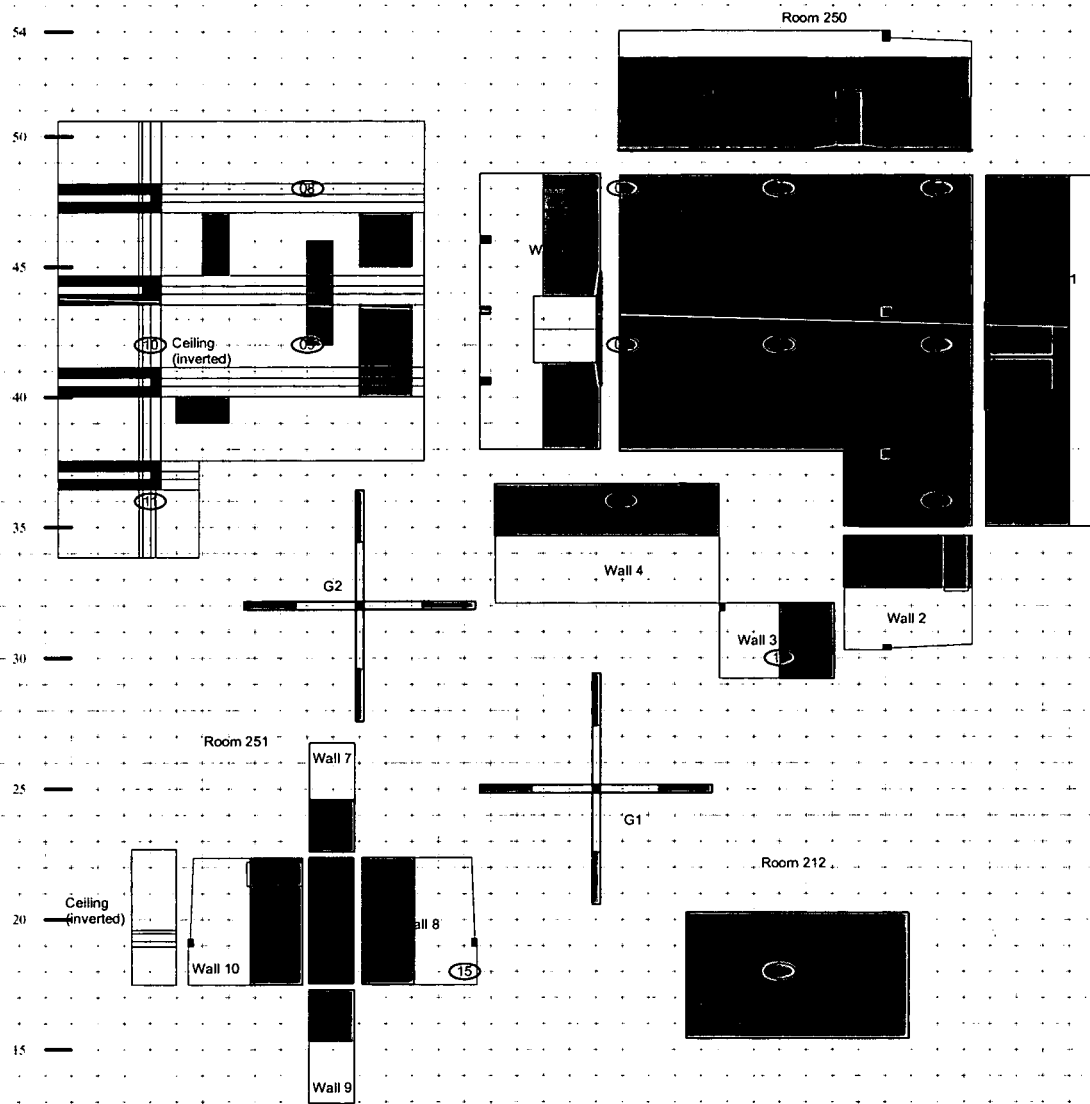
Survey Unit Description: Rooms 212, 250, 251

Total Floor Area: 205sq. m

Total Area: 696 sq. m

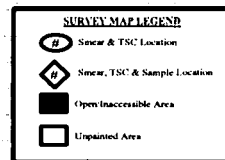
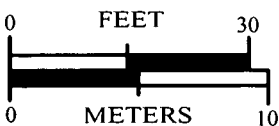
Grid Size: 6 m x 6 m

SURVEY UNIT 771046 - MAP 1 OF 1



Completed hand scans
Area scanned = 148 sq. m.
Percent of Total Area = 21 %

Completed monitor scans
Area scanned = 239 sq. m.
Percent of Total Area = 34 %



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Survey Unit 771046 Data Summary

Total Surface Activity Measurements

15	15
Number Required	Number Obtained

	PRE	POST
MIN	2.3	1.3
MAX	54.5	63.7
MEAN	24.2	15.4
STD DEV	14.6	14.3

TRANSURANIC DCGL _w	100	100	dpm/100 cm ²
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Removable Activity Measurements

15	15
Number Required	Number Obtained

	PRE	POST	
MIN	-1.8	-0.9	dpm/100 cm ²
MAX	5.8	2.1	dpm/100 cm ²
MEAN	0.4	0.5	dpm/100 cm ²
STD DEV	1.7	0.9	dpm/100 cm ²

TRANSURANIC DCGL _w	20	20	dpm/100 cm ²
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Media Sample Activity

Media Samples

15	15
Number Required	Number Obtained

Total Transuranic Results

MIN	80.0	dpm/100 cm ²
MAX	80.0	dpm/100 cm ²
MEAN	80.0	dpm/100 cm ²
STD DEV	0.0	dpm/100 cm ²

Survey Unit 771046 TSA Data Summary

Pre-Sample Total Surface Activity Survey						Post-Sample Total Surface Activity Survey					
Meter Model:	NE Electra w/ DP6 Probe				Local Area Bkcd (com)	Meter Model:	NE Electra w/ DP6 Probe				Local Area Bkcd (com)
Instrument #:	391	395	N/A	N/A	6.2	Instrument #:	2380	295	N/A	7.7	
Cal. Due Date:	2/26/04	5/4/04	N/A	N/A		Cal. Due Date:	9/30/03	10/29/03	N/A		
Efficiency (c/d):	0.230	0.223	N/A	N/A		Efficiency (c/d):	0.217	0.213	N/A		
Sample Location Number	Total Surface Activity Measurements					Sample Location Number	Total Surface Activity Measurements				
	Serial #	Date	(com)	(dcm/100 cm ²)			Serial #	Date	(cpm)	(dcm/100 cm ²)	
1	391	11/12/03	10.7	19.7		1	2380	07/21/03	9.3	7.4	
2	391	11/12/03	17.3	48.4		2	2380	07/21/03	10.7	13.7	
3	391	11/12/03	14.0	34.0		3	2380	07/21/03	9.0	5.9	
4	391	11/12/03	8.7	11.0		4	2380	07/21/03	9.3	7.4	
5	391	11/12/03	12.0	25.3		5	2380	07/21/03	10.7	13.7	
6	391	11/12/03	10.0	16.6		6	2380	07/21/03	11.3	16.5	
7	391	11/12/03	13.3	31.0		7	2380	07/21/03	10.7	14.0	
8	391	11/12/03	13.3	31.0		8	2380	07/21/03	8.0	1.3	
9	391	11/12/03	18.7	54.5		9	2380	07/21/03	12.0	20.1	
10	391	11/12/03	6.7	2.3		10	2380	07/21/03	21.3	63.7	
11	391	11/12/03	12.7	28.4		11	2380	07/21/03	10.7	14.0	
12	391	11/12/03	8.0	7.9		12	2380	07/21/03	9.3	7.4	
13	391	11/12/03	8.0	7.9		13	2380	07/21/03	10.7	14.0	
14	391	11/12/03	11.3	22.3		14	2380	07/21/03	11.0	15.1	
15	391	11/12/03	11.3	22.3		15	2380	07/21/03	11.3	16.5	
QC - 5	395	11/12/03	14.0	34.3		QC - 1	295	07/24/03	6.7	18.8	
QC - 7	395	11/12/03	12.7	28.5		QC - 7	295	07/24/03	10.7	37.6	
			MIN	2.3					MIN	1.3	
			MAX	54.5					MAX	63.7	
			MEAN	24.2					MEAN	15.4	
			SD	14.6					SD	14.3	
			Transuranic DCGL _w	100					Transuranic DCGL _w	100	

Survey Unit 771046 RSA Data Summary

Pre-Sample Smear Results					Post-Sample Smear Results				
Smear Location Number	Serial Number	Date Counted	Gross (counts)	Gross (cpm)	Serial Number	Date Counted	Gross (counts)	Gross (cpm)	(dpm/100 cm ²)
1	1053	11/12/03	1.0	0.5	1199	7/25/03	2.0	1.0	0.0
2	1491	11/12/03	2.0	1.0	832	7/25/03	1.0	0.5	0.6
3	1053	11/12/03	1.0	0.5	1199	7/25/03	2.0	1.0	0.0
4	1491	11/12/03	0.0	0.0	832	7/25/03	2.0	1.0	2.1
5	1053	11/12/03	1.0	0.5	1199	7/25/03	0.0	0.0	-0.1
6	1491	11/12/03	1.0	0.5	832	7/25/03	2.0	1.0	2.1
7	1053	11/12/03	1.0	0.5	1199	7/25/03	1.0	0.5	0.0
8	1491	11/12/03	5.0	2.5	832	7/25/03	2.0	1.0	2.1
9	1053	11/12/03	1.0	0.5	1199	7/25/03	1.0	0.5	0.0
10	1491	11/12/03	0.0	0.0	832	7/25/03	0.0	0.0	-0.9
11	1053	11/12/03	1.0	0.5	1199	7/25/03	3.0	1.5	0.1
12	1491	11/12/03	1.0	0.5	832	7/25/03	1.0	0.5	0.6
13	1053	11/12/03	1.0	0.5	1199	7/25/03	0.0	0.0	-0.1
14	1491	11/12/03	2.0	1.0	832	7/25/03	1.0	0.5	0.6
15	1053	11/12/03	1.0	0.5	1199	7/25/03	1.0	0.5	0.0
Transuranic DCGL _w MIN MAX MEAN SD					Transuranic DCGL _w MIN MAX MEAN SD				
20					20				
1.7					-1.8				
0.4					5.8				
0.9					2.1				
0.5					0.5				
20					20				

21

Survey Unit 771046 Media Sample Data

Sample Locations	RIN #	Am-241 Activity (pCi/g) ⁽¹⁾	TBD-00076 Total α /Am241	Total media sample weight in grams ⁽²⁾	pCi to dpm conversion factor	Sample surface area (cm ²)	Probe Area (cm ²)	Total Activity (dpm/100 cm ²)
1-15	03Z2052	0.0667	8.07	102.5	2.22	169	100	72

(1) Pu-239/240 not detected due to low activity (less than critical level)

(2) Total weight 15 samples used for conservatism

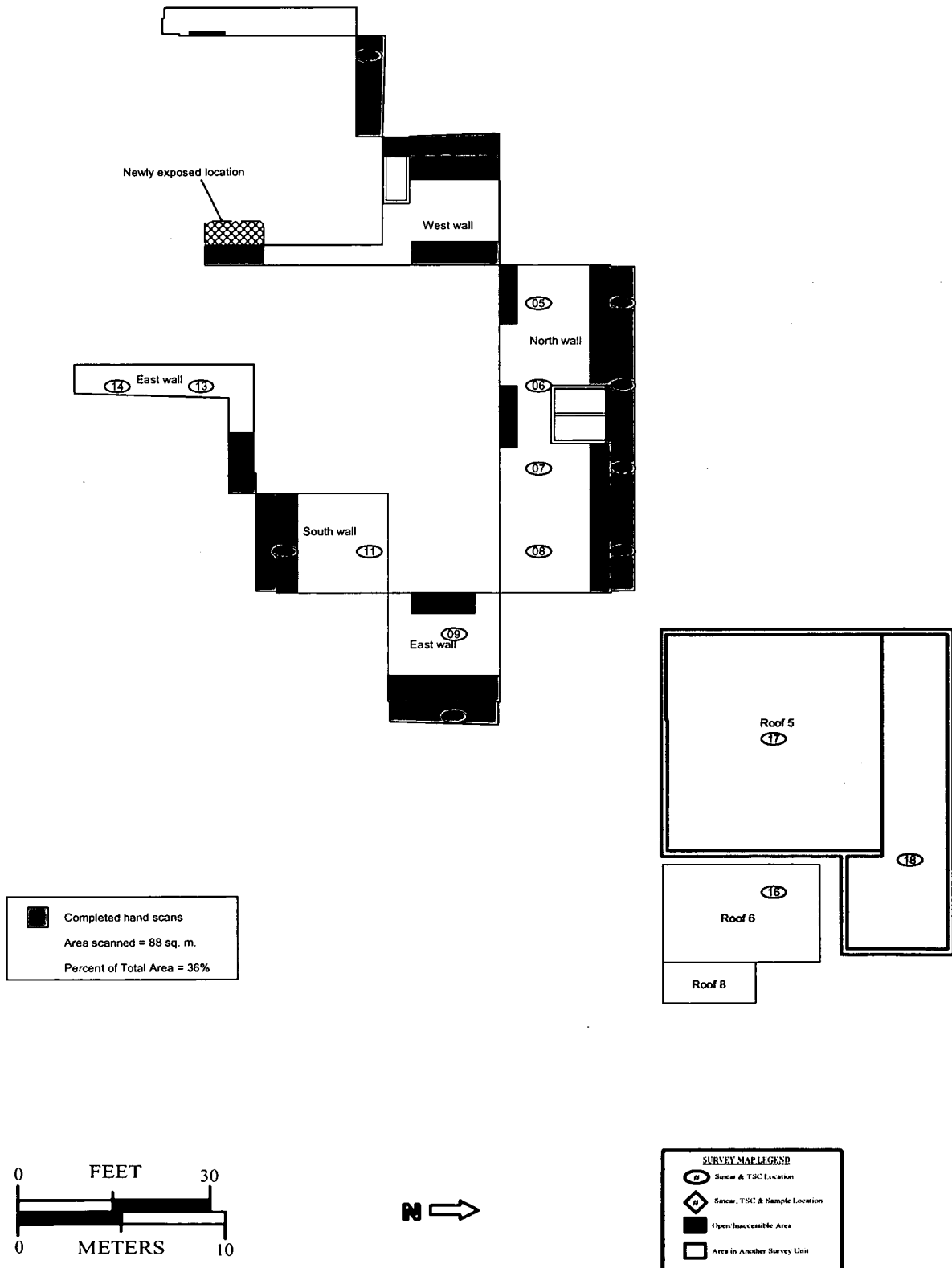
ATTACHMENT C

Survey Unit 771102
Radiological Data Summary and Survey Map

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AL Survey Unit: 771102 Classification: 2
 Building: 774
 Survey Unit Description: Exterior of Rooms 250, 251
 Total Floor Area: N/A Total Area: 244 sq. m Grid Size: 4m x 4m

SURVEY UNIT 771102 - MAP 1 OF 1



Survey Unit 771102 Data Summary

Total Surface Activity Measurements

15	18
Number Required	Number Obtained

	PRE	POST
MIN	-1.2	4.5
MAX	51.5	4.5
MEAN	25.7	4.5
STD DEV	14.6	0.0

TRANSURANIC DCGL _w	100	100	dpm/100 cm ²
----------------------------------	-----	-----	-------------------------

Removable Activity Measurements

15	18
Number Required	Number Obtained

	PRE	POST	
MIN	-1.8	0.3	dpm/100 cm ²
MAX	0.3	3.3	dpm/100 cm ²
MEAN	-0.5	1.8	dpm/100 cm ²
STD DEV	0.9	1.5	dpm/100 cm ²

TRANSURANIC DCGL _w	20	20	dpm/100 cm ²
-------------------------------	----	----	-------------------------

Media Sample Activity

Media Samples

N/A	N/A
Number Required	Number Obtained

Total Transuranic Results

MIN	N/A	dpm/100 cm ²
MAX	N/A	dpm/100 cm ²
MEAN	N/A	dpm/100 cm ²
STD DEV	N/A	dpm/100 cm ²

Survey Unit 771102 Total Surface Contamination Results

Pre-Sample Total Surface Activity Survey						Post-Sample Total Surface Activity Survey					
Meter Model:	NE Electra w/ DP6 Probe				Local Area Bkcd (cpm)	Meter Model:	NE Electra w/ DP6 Probe				Local Area Bkcd (cpm)
Instrument #:	396	1416	395	N/A	3.6	Instrument #:	396	N/A	N/A		2.2
Cal. Due Date:	4/16/04	2/19/04	5/4/04	N/A		Cal. Due Date:	4/16/04	N/A	N/A		
Efficiency (c/d):	0.236	0.216	0.223	N/A		Efficiency (c/d):	0.236	N/A	N/A		
Sample Location Number	Total Surface Activity Measurements					Sample Location Number	Total Surface Activity Measurements				
	Serial #	Date	(cpm)	(dpm/100 cm ²)			Serial #	Date	(cpm)	(dpm/100 cm ²)	
1	1416	10/29/03	8.7	23.8							
2	1416	10/29/03	9.3	26.5							
3	1416	10/29/03	10.7	33.0							
4	1416	10/29/03	8.0	20.5							
5	1416	10/29/03	8.0	20.5							
6	1416	10/29/03	8.0	20.5							
7	1416	10/29/03	7.3	17.3							
8	1416	10/29/03	13.3	45.1							
9	1416	10/29/03	6.7	14.5							
10	1416	10/29/03	3.3	-1.2							
11	1416	10/29/03	13.3	45.1							
12	1416	10/29/03	4.0	2.0							
13	1416	10/29/03	10.0	29.8							
14	1416	10/29/03	8.7	23.8							
15	1416	10/29/03	14.7	51.5							
16 (Roof)	396	10/29/03	14.7	47.2		16 (Roof)	396	10/29/03	3.3	4.5	
17 (Roof)	396	10/29/03	7.3	15.8		17 (Roof)	396	10/29/03	3.3	4.5	
18 (Roof)	396	10/29/03	10.0	27.3		18 (Roof)	396	10/29/03	3.3	4.5	
QC - 15	395	11/12/03	22.7	79.4							
QC - 3	395	11/12/03	13.3	37.2							
				MIN	-1.2					MIN	4.5
				MAX	51.5					MAX	4.5
				MEAN	25.7					MEAN	4.5
				SD	14.6					SD	0.0
				Transuranic DC	100					Transuranic DCGL _w	100

NOTE: Pre-TSA/RSA locations #16-18 represent measurements on top of roofing material.

NOTE: Post-TSA/RSA locations represent measurements on base of roof (following removal of roofing material)

Survey Unit 771102 Removable Surface Activity Results

Smear Location Number	Pre-Sample Smear Results					Post-Sample Smear Results				
	Serial Number	Date Counted	Gross (counts)	Gross (cpm)	(dpm/100 cm ²)	Serial Number	Date Counted	Gross (counts)	Gross (cpm)	(dpm/100 cm ²)
1	1410	10/29/03	1.0	0.5	0.3					
2	1351	10/29/03	1.0	0.5	-0.3					
3	1410	10/29/03	1.0	0.5	0.3					
4	1351	10/29/03	1.0	0.5	-0.3					
5	1410	10/29/03	1.0	0.5	0.3					
6	1351	10/29/03	0.0	0.0	-1.8					
7	1410	10/29/03	1.0	0.5	0.3					
8	1351	10/29/03	1.0	0.5	-0.3					
9	1410	10/29/03	1.0	0.5	0.3					
10	1351	10/29/03	1.0	0.5	-0.3					
11	1410	10/29/03	1.0	0.5	0.3					
12	1351	10/29/03	1.0	0.5	-0.3					
13	1410	10/29/03	1.0	0.5	0.3					
14	1351	10/29/03	0.0	0.0	-1.8					
15	1410	10/29/03	0.0	0.0	-1.2					
16	1410	10/29/03	0.0	0.0	-1.8	1410	10/29/03	3.0	1.5	3.3
17	1410	10/29/03	0.0	0.0	-1.2	1410	10/29/03	2.0	1.0	1.8
18	1410	10/29/03	0.0	0.0	-1.8	1410	10/29/03	1.0	0.5	0.3
				MIN	-1.8				MIN	0.3
				MAX MEAN SD	0.3				MAX MEAN SD	3.3
					-0.5					1.8
					0.9					1.5
				Transuranic DCGL _w	20				Transuranic DCGL _w	20

NOTE: Pre-TSA/RSA locations #16-18 represent measurements on top of roofing material.

NOTE: Post-TSA/RSA locations represent measurements on base of roof (following removal of roofing material)

ATTACHMENT D

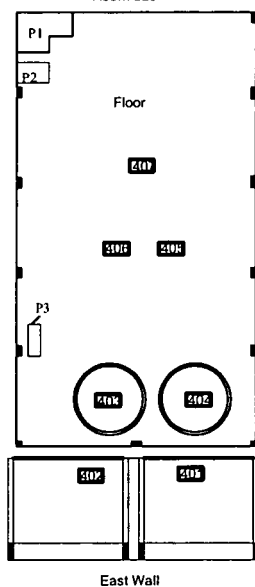
Chemical Data Summaries and Sample Maps

Survey Area: AM Survey Unit: 771053 Be Classification: N/A
Building: 774
Survey Unit Description: Rooms 220/320/FP 203

Total Floor Area: N/A Total Area: N/A Grid Size: N/A

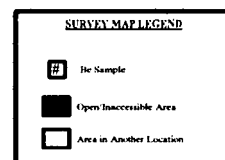
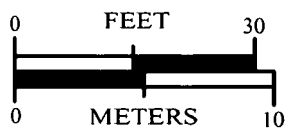
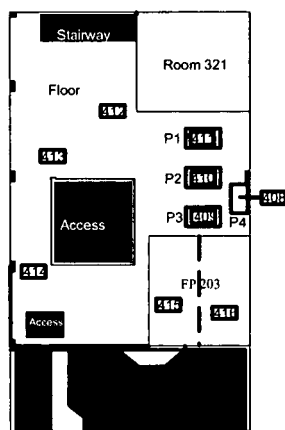
SURVEY UNIT 771053 Be - MAP 1 OF 1

774
Room 220



Sample location	Sample Number	Sample Result
401 thru 416	774-11182003-612-401 thru 416	<0.1 ug/100 sq. cm

Room 320



Industrial Hygiene Information System

Surface Sample Report

IHISR_SURFACE_SAMPLE

Date: 11/25/2003

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RIN: 04Z0432

Sample Number/Type:	774-11182003-612-401	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON WALL			
Room No:	220			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-402	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON WALL			
Room No:	220			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-403	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON FLOOR			
Room No:	220			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-404	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON FLOOR			
Room No:	220			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-405	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON FLOOR			
Room No:	220			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-406	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON FLOOR			
Room No:	220			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-407	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON FLOOR			
Room No:	220			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-408	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON FLOOR			
Room No:	320			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-409	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON FLOOR			
Room No:	320			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-410	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON FLOOR			
Room No:	320			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-411	WIPE	Hygienist:	E. PAULA PARKER
Location Info:	ON FLOOR			
Room No:	320			
Analyte:	BERYLLIUM AND BE COMPOUNDS (AS BE)			
Concentration:	< 0.1000 _ UG/100CM2			
Sample Number/Type:	774-11182003-612-412	WIPE	Hygienist:	E. PAULA PARKER

Industrial Hygiene Information System

Surface Sample Report

IHSR_SURFACE_SAMPLE

Date: 11/25/2003

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RIN: 04Z0432

Sample Number/Type: 774-11182003-612-412 WIPE Hygienist: E. PAULA PARKER
Location Info: ON FLOOR
Room No: 320

Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 774-11182003-612-413 WIPE Hygienist: E. PAULA PARKER
Location Info: ON FLOOR
Room No: 320

Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 774-11182003-612-414 WIPE Hygienist: E. PAULA PARKER
Location Info: ON FLOOR
Room No: 320

Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 774-11182003-612-415 WIPE Hygienist: E. PAULA PARKER
Location Info: IN FP 203
Room No: N/A

Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 774-11182003-612-416 WIPE Hygienist: E. PAULA PARKER
Location Info: IN FILTER PLENUM 203
Room No: N/A

Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 774-11182003-612-417B BLANK Hygienist: E. PAULA PARKER
Location Info:
Room No:

Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG

Sample Number/Type: 774-11182003-612-418B BLANK Hygienist: E. PAULA PARKER
Location Info:
Room No:

Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG

OFFICIAL USE ONLY

Contains information which may be exempt from public release under the Freedom of Information Act (5 USC 552), exemption numbers(s) 2.
Approval by the Department of Energy prior to public release is required.

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ATTACHMENT E

Historical Review

B774 North Dock Area
Historical Review
November 13, 2003

<p>Facility ID: Building 774, Rooms 212 and 250 (Survey Area AM)</p> <p>Anticipated Facility Type (1, 2, or 3): Type 3 (Based on proximity to Building 774 only). Based on low contamination potential, the interior of the Room 250 Dock and Room 212 Shed is classified as a Class 2 survey unit. The exterior of this survey unit is Class 3.</p>
<p>Physical Description: The B774, Room 250 Dock is approximately 1900 square feet, with concrete walls covered with preformed insulated siding. The 212 Shed dock area is approximately 448 square feet, with unpainted metal siding.</p>
<p>Historical Operations: Rooms 250 and 251 was constructed in 1986 to contain the precipitation process equipment. However, this area never became operational, and was maintained as a storage area. The B774 step-off pad was relocated to this area in 2002. Daily surveys did not identify contamination in excess of the Site Radiation Control Manual Table 2-2 limits.</p> <p>Room 212 was historically used to store powders for the OASIS process (oil/grease processing). It has been used as a storage area in recent years.</p>
<p>Current Operational Status The Building 774 Room 250 Dock and 212 Shed are no longer operational. All major equipment has been removed.</p>
<p style="text-align: center;">Contaminants of Concern</p>
<p>Asbestos No asbestos-containing materials are present in these areas.</p>
<p>Beryllium (Be) Building 774, Rooms 212 and 250, are not RFETS Beryllium (Be) Areas, based on historical and existing classifications, and historical use. Sixteen (16) smears were collected in support of the PDSP for this area. All results were less than the investigation level of 0.1 µg/100 cm².</p>
<p>Lead The remaining paint on the Room 212, 250, and 251 interior will not be removed from the substrate.</p> <p>A visual inspection of the area by 771/774 Environmental Compliance/Industrial Hygiene personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling.</p> <p>Although the paint in this area was not specifically sampled and evaluated for lead, the samples collected from other areas of Building 771/774 are considered representative of the expected lead levels in the Room 250 dock paint. Analysis of paint from the process areas of the 771/774 complex has revealed lead levels above regulatory limits in only one out of 61 samples taken, and the elevated level was only found in the stack exhaust tunnel. However, follow-up samples collected from the tunnel indicate TCLP levels below regulatory concerns (3 ppm).</p>
<p>RCRA/CERCLA Constituents A visual inspection of Room 250 dock and Room 212 shed by 771/774 Environmental Compliance/Industrial Hygiene personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling. As a result of these observances, it has been determined that no additional sampling for RCRA/CERCLA constituents is required.</p>

**B774 North Dock Area
Historical Review
November 13, 2003**

PCBs

Free-flowing or exposed PCBs have never been used or transferred in Room 250 or 212. PCB ballasts in fluorescent light fixtures were present throughout the area, and have been removed and disposed of.

Radiological Contaminants

The contaminants of concern for the 771 project, including all areas of Buildings 771 and 774, are transuranic alpha-emitting radioisotopes (including Pu-238, Pu-239/240, Pu-242, and Am-241). Based on findings documented in Radiological Engineering TBD-00161, Rev. 0, alpha-only surveys assure that the unrestricted-release limits for any other isotopes that may exist in Building 771/774 will not be exceeded.

Environmental Restoration Concerns

All embedded drains located in this area will be removed during demolition. No radiological contamination is expected in these drains.

No IHSS (150.2) exists under the B774 North Dock Area.

Additional Information

None

References

- (1) *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0.
- (2) *Building 771/774 Cluster Closure Project Reconnaissance Level Characterization Report*, dated August 8, 1998, Revision 2.

Further Actions

Complete the PDS process.

Prepared By:

S. Roberts

Name



Signature

11/25/03

Date